

CLAIMS

1. A process for manufacturing a card with multiple tips designed in particular for testing semi-conductor chips having connection pads in the form of microspheres, said
5 card comprising a substrate (10) formed by a flexible insulating film equipped with conducting tracks connected to contacts in the form of tips (26), wherein:
- a first adhesive metal layer (20) of small thickness is deposited on the flexible film made of insulating material,
 - a second metal layer (22) is deposited by vacuum or electrolysis on the first adhesive layer (20) to form the material of the future conducting tracks,
 - 10 - the metal tips (26) are achieved by a combination of a first UV photolithography operation making use of a thick photosensitive resin and electroforming by means of a metal-ion electrolyte,
 - selective etching of the second metal layer (22) and of the first adhesive layer (20) is performed by means of a second UV photolithography operation to obtain the conducting tracks,
 - 15 - and a superficial passivation insulating layer (24) is deposited on the active conducting area.
- 20 2. The process for manufacturing a card with tips according to claim 1, wherein the flexible film of the substrate (10) is a polymer, in particular a polyimide, having a thickness greater than 25 microns.
- 25 3. The process for manufacturing a card with tips according to claim 1, wherein the first adhesive metal layer (20) is chrome- or nickel-based.
4. The process for manufacturing a card with tips according to claim 1, wherein the second metal layer (22) can be made of copper, gold or aluminium.
- 30 5. The process for manufacturing a card with tips according to claim 1, wherein the tips (26) obtained by electroforming present flat, concave or convex contact surfaces.
6. A card with multiple tips obtained according to the process of one of the claims 1 to
5.
- 35 7. A card with multiple tips to measure the electrical characteristics of a semi-conductor

chip (52) having connection pads (50) in the form of microspheres, said card (CP) comprising a substrate (10) formed by a flexible insulating film equipped with conducting tracks electrically connected to tip contacts (26) designed to come into engagement with said connection pads (50) when testing is performed,

- 5 wherein the flexible film is mounted on a truncated part (30c) of a support part (30) operating in conjunction with a guide (43) associated to a spring suspension (46) so as to obtain a uniform distribution of the contact pressure of the tips (26) on all the connection pads (50) without lateral friction, and that correction of the alignment fault between the plane of the support printed circuit (32) and the plane of the tips (26) is
 - 10 performed by means of a correcting system (31) with three support points adjustable by screws (40) acting on the base (30a) of the support part (30).
8. The card with multiple tips according to claim 7, wherein the support part (30) comprises a cylindrical intermediate part (30b) arranged coaxially inside the guide (29) and having a diameter smaller than that of the base (30a).
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9. The card with multiple tips according to one of the claims 7 or 8, wherein the truncated part (30c) of the support part (30) is provided with a window (38) equipped with a plate made of transparent material, glass or quartz, allowing visual testing of the
- 20 alignment of the tips (26) on the connection pads (50) of the semi-conductor chip (52).

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